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AUTHOR Sampson, Michael R.
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ABSTRACT

J. P. Guilford's "structure of the intellect" provides a system that explains the intellectual abilities of students and identifies major types of productive thinking. A study was conducted to examine whether one of these types--divergent production, which focuses on responses of an individual's own creations--could be enhanced through the use of an instructional cloze procedure. Subjects were 92 third-grade students from three different schools, equally divided into control and experimental groups. Students in the experimental group received regular reading instruction with the addition of 27 instructional cloze lessons. Students in the control group received regular reading instruction with work in reading centers in lieu of the cloze instruction. A Quasi-Cloze Divergent Production Test was used as pretest and posttest. Results indicated that the divergent production of the experimental group was significantly higher than that of the control group. The findings suggest that the cloze procedure can be an effective technique in increasing the divergent production of third-grade students. (FL)

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DR. MICHAEL R. SAMPSON
EAST TEXAS STATE UNIVERSITY
COMMERCE, TEXAS 75428

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The Effects of Instructional Cloze Lessons on the Divergent Production of Third-Grade Students

> If a man does not keep pace with his companions, perhaps it is because he hears a different drummer. Let him step to the music he hears, however measured or far away.

Thoreau's words of wisdom (1924, p. 63) have all but been forgotten by the educational systems of our modern age. Unfortunately, the curriculum of most schools seems to seek to produce students who are carbon copies of one another, rather than tapping the unique differences of students and allowing those students to grow in different ways. This emphasis is upon the acquisition of facts and information instead of creative thought. Torrance and Myers (1970) have stated that students, as a result of their "giving up" creative activities at early ages, become very cautious and that "their thinking becomes more obvious, commonplace, and safe" (p. 69).

Guilford's "structure of the intellect" (1967) provides a system which

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explains the intellectual abilities of students. This model identifies five major groups of intellectual abilities: factors of cognition, memory, convergent thinking, divergent thinking, and evaluation. Guilford's model holds great significance for the field of reading education, its philosophy, and its teaching procedures. This paper examines one of Guilford's major types of productive thinking (divergent production) and reports an experimental study in which the divergent production of third-grade subjects was enhanced through instructional use of the cloze procedure.

Divergent & Convergent Production

Guilford (1968) defines cognition as "discovery or rediscovery or recognition" and memory as "retention of what is cognized" (p. 16). Two types of productive-thinking operations yield new information from known information and remembered information. The first, convergent production, focuses upon uniform responses, whereas the second, divergent production, focuses upon responses of the individual's own creation. There is usually one "correct" response to a convergent production task; however, in contrast, many acceptable answers exist for divergent production tasks. A convergent production task required of a student might be to write a new ending to a story.

Most of the thinking required of students in today's schools is of the convergent production type. However, both convergent and divergent thinking are essential to the assimilation and integration of the many facets of communication. Reading has been defined as a thinking process since the beginning of this century (Thorndike 1917; Goodman 1967; Stauffer 1969; Smith 1978), yet the majority of instructional materials stress convergent production and do little to foster divergent production and creative thought. Instructional techniques are needed to help students produce new, original ideas of the divergent production mode. The cloze procedure, when used as an instructional tool and when scored with semantically consistent scoring criteria (Sampson 1979), is an example of such a technique. Students who respond to cloze blanks under this

scoring system face only the restriction of supplying a word which makes "sense" within the context of the cloze passage. Therefore, cloze provides students with the opportunity to be divergent, since there are many possibilities for acceptable answers to cloze units. This study was conducted to determine if the cloze procedure as an instructional tool is useful in increasing the divergent production of third-grade students.

Method

Population

Third-grade students from a metropolitan school district were the target population for the study. The district had ten elementary schools with a total elementary school enrollment of 4,729 students. Approximately 25% of the students came from low income families. The district was comprised of 84% Anglo students, 12% Hispanic students, 2% Black students, 1½% Native American students.

Assignment of Students to Control and Experimental Groups

Three third-grade teachers from a pool of volunteers were randomly selected to participate in the study. The teachers were from three different schools in the district. The reading programs in two of the three schools utilized an organizational plan in which 104 students from four third-grade classrooms received reading instruction from one reading teacher. From the total number of 208 students (104 students from each school), 68 students were randomly selected to participate in the study. Of this group, 34 were randomly assigned to the control group, and 34 were randomly assigned to the experimental group. The third school differed from the first two in that a single self-contained classroom was used. The self-contained classroom had 24 students who participated in the study; 12 were randomly assigned to the experimental group and 12 to the control group. The total number of students involved in the study from the three schools totaled 92; with 46 students in the control group and 46 students in the experimental group.

The teachers reported that the reading achievement of the students ranged

upward from a high second-grade level. Students reading below this level attended special reading classes and were not available as subjects for the study.

Experimental Treatment

The experimental treatment consisted of regular reading instruction with the addition of twenty-seven instructional cloze lessons. Students were given approximately twelve minutes to read each selection and respond to the cloze deletions. After the completion of the activity, the teacher met with each group of pupils. The students, in groups of six to eight, shared their answers and discussed other possible answers that semantically and syntactically could correctly complete the cloze units. The group discussions focused upon the variety of answers that could be used in most cloze blanks and upon particular responses which would be correct or incorrect within the context surrounding the deletion. The control group worked in reading centers, and the experimental students met in a cloze center in lieu of one of their reading centers. The study spanned a fifteen-week period.

Control Group Activities

The control group activities consisted of regular reading instruction provided by the teacher. This instruction included work in basal readers and reading centers. These centers dealt with comprehension, research skills, phonic activities, independent reading, listening, creative writing, and various other reading and language-related activities. Instructional time was the same for the control and experimental groups. The only instructional difference between the two groups was the experimental treatment, which occurred in lieu of one of the reading centers.

Instructional Cloze Materials

Instructional materials used in the study consisted of twenty-seven instructional cloze exercises selected from published cloze materials (Valmont

and Cera, 1979). The classroom teachers reported that the readability level and concept load of the materials were appropriate for the students. The deletion pattern of the materials was of a selective nature, with words being deleted which emphasized facets of vocabulary and syntactical relationships. For example, in an instructional cloze lesson designed to highlight adjectives, only such descriptors were deleted. This was in contrast to traditional cloze materials which use an every nth word deletion pattern, and in agreement with Jongsma's current conclusion that "it appears that selective deletion systems aimed at particular contextual relationships are more effective instructionally than semi-random deletion systems such as every nth word or every nth noun-verb" (in press).

Testing Instrument and Scoring Procedures

A Quasi-Cloze Divergent Production Test was used as a pretest and posttest in this study. The test was constructed from a basal reader story (Goldreich and Goldreich, 1976). Sampson's (1979) recommendations concerning the length and deletion pattern for cloze tests designed for third-grade students were followed. Thus, the Quasi-Cloze Divergent Production Test was approximately 250 words long, contained 25 deletions, and employed an every tenth-word deletion pattern. Split-halves reliability for the test was .85. Responses to the blanks on the Quasi-Cloze Divergent Production Test were used to measure group divergent production by utilizing a rating technique which examined the number of multiple responses per group (groups totaled six; with an experimental and control group from each of the three schools). For example, twelve students in the experimental group in one school might provide seven different words that would be deemed acceptable according to semantically consistent scoring criteria for the first blank on the test. Therefore, that group's word production rating for the first blank would be seven. To obtain the overall

group word production rating, the scores for all 25 cloze blanks on the Quasi-Cloze Divergent Production Test would be combined and a group mean calculated for the experimental group and the control group.

Results

Initial pretest score differences between groups necessitated the data being analyzed by a two-way analysis of covariance with pretest scores being the covariate. The data analysis indicated that school organizational pattern for reading had no significant main effect and did not significantly interact with treatment. The adjusted posttest means (Control=2.72; Experimental=4.35) from the Quasi-Cloze Divergent Production Test indicated that there was a statistically significant difference between the two groups in divergent production. The divergent production of the experimental group ($F=61.09$, $p < .001$) was significantly higher than the control.

Discussion

The findings of this study seem to indicate that the cloze procedure can be an effective technique in increasing the divergent production of third-grade students. At the beginning of the study, students were shy and appeared to be afraid of taking chances when filling in cloze blanks. As the study progressed, students became more competitive as they endeavored to select more descriptive and sophisticated words. This was particularly note-worthy because, as mentioned earlier, schools often stress convergent production and consequently produce students who become very cautious and afraid of making mistakes. Instructional cloze lessons appear to be one means of "freeing" students to take "chances" in school. However, the generalizability of any one study is limited, and it is essential that several confirming studies be required before a result can be accepted as true and worthy of implementing in the classroom.

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